



Ausgrid Submission

Assessing DER integration expenditure

January 2020



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Attn: Arek Gulbenkogl
A/General Manager, Distribution
Australian Energy Regulator
GPO Box 520
Melbourne VIC 3001

Dear Mr Gulbenkogl

Ausgrid welcomes the Australian Energy Regulator's (AER) consultation paper on *Assessing Distribution Energy Resource (DER) Integration Expenditure*.

The penetration of DER has grown significantly since 2013 when the AER published its Expenditure Forecast Assessment (EFA) Guideline. It is therefore timely for the AER to consult on how DER related expenditure, as a relatively new driver of network investment, should be assessed.

Our submission is attached to this cover letter. Consistent with other policy submissions we have recently made, Ausgrid shared a draft version of this submission with customer advocates prior to submitting it. The feedback we received has then been incorporated in our submission. This new practice of sharing submissions prior to lodging them is helping Ausgrid on its journey to becoming a more customer centric organisation.

If you would like to discuss our submission in more detail please contact Shannon Moffitt, Acting Regulatory Policy Manager, on (02) 9269 2280 or shannon.moffitt@ausgrid.com.au.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Iftekhar Omar", written in a cursive style.

Iftekhar Omar
Head of Regulation

Submission

Question	Response
Question i	
<p>Are our assessment techniques outlined in our Expenditure Forecast Assessment Guideline (the EFA Guideline) sufficient to assess DER integration expenditure?</p>	<p>We support a review of the assessment techniques outlined in the AER’s EFA Guideline, to determine whether they are sufficient to assess DER integration expenditure.</p> <p>The penetration of DER has grown significantly since 2013 when the EFA Guideline was published. It is therefore timely to consult on how DER related expenditure, as a relatively new driver of network investment, should be assessed. Following this review, we expect that additional assessment techniques may need to be added to the EFA Guideline.</p>
Question ii	
<p>What form of guidance should we include to clarify how our assessment techniques apply to DER integration expenditure? For example, should we update the EFA Guideline to be more prescriptive, or only include principles to allow for greater flexibility in our assessment and information requirements as DER integration matures?</p>	<p>In our view the AER should target general principles, not prescriptive rules, when developing its assessment approach.</p> <p>General principles provide the flexibility needed to adapt the AER’s assessment approach, as customer needs evolve and the role of DER changes and expands. Notwithstanding, the Council On The Aging (COTA) took a caution position on this point when we shared our submission.</p> <p>The impact of DER on networks is likely to be varied between businesses and geographical locations, and therefore prescriptive rules are likely to be hard to apply across all distributors. There is also a risk that prescriptive rules made at a point in time will not provide the flexibility needed to adapt to rapid changes in DER technologies and services. The rigid application of strict rules can often have unintended consequences as well.</p> <p>The AER should consider the expanded role of customer engagement as part of its review. As Ausgrid works towards becoming a more customer centric organisation, we need to be able to collaborate with others about the most efficient solutions to integrating DER into our network in a way that meet the needs of our customers. Through our Network Innovation Advisory Committee (NIAC) we are collaborating with our customer advocates on many issues related to the integration of DER on our network. General principles, not prescriptive rules, will help facilitate this engagement.</p>

Question 1 – Information provision	
<p>What information is reasonable and necessary in identifying and evidencing the impact of DER on the demand for standard control services and hence on maintaining the quality, reliability or security of supply of standard control services?</p>	<p>We support the AER providing guidance on the information provision requirements for DER integration expenditure proposals, but caution against being overly prescriptive. This will ensure that DNSPs have enough flexibility to adapt their proposals according to their individual DER investment needs and the outcomes from customer collaboration.</p> <p>Information requirements for DER integration proposal during the reset process could be modelled on the RIT-D. This would support information requirements based on identifying the need, assessing the credible options, selecting reasonable inputs (VCR, discount rates), valuing costs and assessing market benefits.</p> <p>The Total Environment Centre (TEC) commented that most solar photovoltaic (PV) owners are unaware of the impact that their generation and exports have on the grid. It then concluded that there is a need to engage with customers about this impact and assess their willingness to pay for DER exports. Ausgrid agrees that there is a need to consult with customers about this issue. As outlined in our response to question 7, this could culminate in a DER equivalent of the value of customer (VCR) metric. Such a metric, once developed, would be critical to the information taken into account when assessing DER integration projects.</p> <p>COTA also informed us that ‘clarification of export arrangements for consumers is sorely needed to ensure equity and certainty for investment decisions for household and business sectors’.</p>
Question 2 – Options analysis	
<p>What range of options should DNSPs consider for DER related investments? Does the Regulatory Investment Test – Distribution provide the appropriate starting point for this analysis?</p>	<p>In our view the approach outlined in the RIT-D provides an appropriate starting point for the range of options that should be considered.</p> <p>In assessing credible options, the ‘identified need’ may vary from traditional network investments. For example, from a customer perspective the most important driver for DER integration expenditure may be firmer access to energy markets, such as FiT tariff schemes, VPPs and peer to peer trading. These unique drivers need to form part of the expenditure assessment framework.</p> <p>The choice between “capex versus opex” based solutions should be considered from a customer’s perspective too. In terms of price, a capex solution may be preferred because it has a lower bill impact in the year the costs are incurred compared to using opex. When optionality is considered, however, a capex solution may not be favoured. This is because opex can</p>

	<p>provide greater flexibility to take up new technologies in the future, compared to making a sunk capital investment.</p> <p>Notwithstanding, the Public Interest Advocacy Centre (PIAC) did comment that a capex solution can, in some cases, better enable options. PIAC noted that, irrespective of whether an option is capex or opex, a better distinction would be whether the costs incurred would enable options in the future. COTA raised a similar point.</p> <p>As the AER and the industry as a whole works towards the “New Reg” approach, the AER should take steps towards ensuring that the choices between capex and opex based solutions can be resolved collaboratively between network businesses and their customers. This reinforces that the expenditure assessment framework should be flexible enough to incorporate a wide range of options that can be presented to customers for direct input.</p> <p>The AER may also wish to consider whether its definition of DER is too narrow. In engaging with stakeholders about the AER’s consultation paper the TEC commented that the AER’s definition appears to exclude customer driven demand response and demand management initiatives. We agree with the TEC that an overly narrow definition of DER could exclude cost effective options to addressing customer needs.</p>
<p>Question 3 – Sampling and modelling</p>	
<p>Electricity networks have utilised sampling and modelling techniques to forecast energy demand and consumption for decades. These processes have proven effective for large cohorts of consumers where diversified behaviours can be predicted with sufficient accuracy. Is it reasonable to assume that sampling and modelling techniques will play a part in developing dynamic models of the electricity networks?</p>	<p>Yes, we do believe sampling and modelling techniques will need to play a part in the future. The use of sampling and modelling is playing an increasingly important role in helping to monitor the LV network and identifying ways to efficiently integrate DER.</p> <p>At Ausgrid, our Load Information System (LIS) provides us with this capability. It does this by taking a sample of the LV network’s performance using the monitoring equipment we have available, and then extrapolating that sample across our broader LV footprint, using statistical modelling techniques.</p> <p>This sampling and modelling approach unlocks efficiencies. It means that rather than investing in monitoring equipment across each point of our LV network, these investments are only needed at select locations. The ‘gaps’ are then filled in using advanced analytics and statistical assumptions.</p> <p>In the future, we expect that our LIS will need more data from a larger network of LV monitoring equipment. DER penetration is expanding and customers continue to play an increasingly larger role in the electricity supply chain as we move towards a ‘two sided’ market. As this happens,</p>

	<p>the sample we need to extrapolate meaningful insights, using statistical modelling, will have to be larger.</p> <p>When assessing DER integration needs we would, however, caution against applying modelling outcomes deterministically. There are risks associated with placing too much weight into models given that model results are often highly dependent on assumptions that may not always prove to be true or robust. Other factors, besides modelling, need to be considered too.</p>
<p>Question 4 – Non-network options</p>	
<p>Distributed energy resources are, by definition, located at the end of the electricity network. Typically networks have less visibility of this part of the network. What approaches or information is reasonable to assess whether DNSPs have considered purchasing the necessary information from metering or DER data providers rather than building their own assets and systems?</p>	<p>Our visibility of where DER is installed and how it is capable of behaving is becoming increasingly critical to Ausgrid’s ability to safely and reliably manage our network inside its secure operating envelope.</p> <p>Electricity distributors have designed their networks to cope with a relatively predictable operating regime, which has meant that we do not currently have the monitoring and control tools that are needed to have clear visibility of DER.</p> <p>In assessing whether to spend opex to purchase the necessary information from a third-party provider or invest capital in building our own assets and systems, Ausgrid considers all credible options. In accordance with our governance processes and the incentive regime administered by the AER, we then select the option which delivers the most net benefits, irrespective of whether it is capex or opex. This is after conducting an engineering assessment, running financial analysis and seeking input from our customers via our consultative committees, including the NIAC.</p> <p>In terms of our engineering assessment, we would have regard to the level of penetration of smart meters. If penetration of smart meters is low in the region of interest, then our ability to procure the necessary data from third party providers may be limited.</p>
<p>Question 5 – Policy and standards</p>	
<p>The optimisation of DER can be improved through many different approaches. Factors such as tariff reform, connection standards, technical standards, energy</p>	<p>We agree that tariff reform is key to making energy markets work better and that greater cost reflectivity in network prices has the potential to incentivise customers to use solar PV, EV chargers and other forms of DER in a way that optimises their impact on our network.</p> <p>Tariff reform will only be able to defer or even avoid DER integration expenditure if network business, the AER, retailers and customer advocates all work collaboratively together. In the</p>

<p>efficiency standards, etc. can greatly impact the way that DER operates on the network and impact on network performance. How should these options be integrated with the development of network DER proposals?</p>	<p>absence of such collaboration, there is a risk that innovation in network tariffs may be stifled and valuable price signals not being passed through to key market participants. Pricing reforms needed to incentivise the efficient use of new and emerging energy technologies, as well as our network infrastructure, would not be implemented.</p> <p>Policy and standards reform that impact our network – such as changes to connection standards, technical standards, energy efficiency standards – should be incorporated into cost benefit analysis, where appropriate. Consistent with the RIT-D, if evidence supports there being a reasonable possibility of policy change that could affect the ranking of credible options, then the cost benefit analysis should include a reasonable scenario where this policy change occurs.</p>
<p>Question 6 - Cost benefit analysis</p>	
<p>Project justifications will require detailed analysis on the costs and benefits of each option. Many of these benefits may be external to the DNSP’s cost base, and may accrue directly to DER users. What level of analysis is required?</p>	<p>The breadth of factors that should be taken into account could be modelled on the RIT-D principles in clause 5.17.1 of the NER.</p> <p>Using clause 5.17.1 of the NER as a guide, project justifications for DER integration expenditure should:</p> <ul style="list-style-type: none"> • identify the credible option that maximises the present value of net economic benefits to all those who produce, consume and transport electricity in the NEM (clause 5.17.1(b)) • the level of analysis the AER expects should be not be disproportionate to the scale and likely impact of the credible options under consideration (clause 5.17.1(c)(2)) • the changes in costs for other parties due to differences in the timing of new infrastructure, capital costs and operating and maintenance costs should be considered (clause 5.17.1(c)(4)(iii))
<p>Question 7 – Customer Benefit</p>	
<p>With DER being able to provide services across the electricity supply chain, how should DNSPs identify and value customer benefits? These benefits can include</p>	<p>The increased export potential and greater access to energy markets and network support services are key customer benefits underpinning DER integration investments.</p> <p>We would support guiding principles for valuing customer exported electricity, but consider a prescriptive approach for all electricity distributors is unlikely to be feasible given the differing operating environments and DER take up rates across the NEM.</p>

<p>reliability outcomes, increased export potential, greater access to energy markets, access to network support services, etc. Should a common approach to valuing consumer exported electricity be established?</p>	<p>When we shared a draft of our submission, the TEC pointed out that the ARENA-led Distributed Energy Integration Program (DEIP) is working towards valuing the costs and benefits of DER exports to the grid. Part of this work includes a study on the value of customer exports (VCE) and a potential rule change proposal that would provide a DER equivalent of the VCR metric.</p> <p>We wish to highlight this point from the TEC. In examining customer benefits while making investment decisions, a quantitative metric – such as a DER equivalent of VCR – is likely needed. We therefore emphasise that the AER’s framework for assessing DER integration expenditure must be consistent with emerging studies and policy proposals, such as the DEIP work, currently underway in this space.</p> <p>Our understanding is that CCP14’s submission will make similar comments. CCP14 has told us that in quantifying the customer value of DER: ‘we ask the AER to consider how utilities can state the benefits side of the DER hosting capacity business cases, if for no other reason than to establish a level of consistency and clarity for consumers when considering these investments’.</p> <p>The AEMC’s 2019 Electricity Network Economic Regulatory Framework Review (ENERF) noted that there may be merit in considering explicit DNSP incentives for managing export constraints, either through pricing arrangements or as an enhancement to the STPIS. We consider this proposal is worth exploring given that, as noted by the AEMC, the ‘network regulatory framework currently imposes no consequences on DNSPs for constraining off DER generation, and similarly provides no benefits for increasing DER hosting capacity where this is in the long term interest of consumers’.</p> <p>As part of the next stage of consultation, the AER should consider engaging on a standalone DER incentive scheme as recommended by ENERF. We also understand that CCP14 is of the view that the DMIS incentives could potentially be translated to the challenges of integrating DER.</p> <p>In engaging with customer advocates, COTA made it clear to us that ‘reliability and costs are key to the senior community and will impact in a diverse way in various areas’ and that ‘the achievement of long term improvements in these areas should guide approaches’.</p>
<p>Question 8 – Options value</p>	
<p>Noting the technological rate of change and the typical asset life of 65 years of many network assets, it is</p>	<p>We would support general principles for incorporating option value for emerging technologies.</p> <p>In our 2019-24 revised proposal, Ausgrid made a commitment to collaborate with our customers on how we incorporate option value into our investment decision making. We have since set up</p>

<p>important to test whether current research could provide a more efficient option in the near future. Should an assessment of emerging alternative approaches be a requirement for DER forecast expenditure? Should there be an 'options value' placed on this?</p>	<p>a Technical Review Committee (TRC) to work with customers towards achieving this. Guiding principles, not prescriptive rules, would assist us in this process.</p> <p>The AER should have regard to the ability of DER related investments to preserve option value. This is because DER can often build in options to expand supply capabilities in response to demand risks and technological advancements.</p> <p>In its consultation paper, the AER references a typical asset life of 65 years for network assets. However, new network technologies are associated with shorter asset lives. This includes assets associated with DER integration investments, such as information technology (~5 year asset life) and operational technology (~7 year asset life). This is significant when assessing option value since overestimating asset life would inflate the sunk cost risk associated with an investment. An underestimate of asset life would deflate sunk cost risk associated with an investment. Community batteries, a DER integration project Ausgrid is currently investigation, have a forecast technical life of ~10 years.</p> <p>As a general principle, the sunk cost risk should reflect the lifespan and the cost of the asset under consideration. The alternative approaches that are assessed as part of attributing option value should also be limited to the foreseeable future.</p>
<p>Question 9 – Shared learning and systems</p>	
<p>The development of common platforms, communication standards and shared systems may reduce the overall cost and complexity of facilitating DER. Should DNSPs need to show how they have considered options that leverage shared learning, common standards and common systems to provide efficient solutions, and that they have consulted and implemented learnings from prior works and trials across the NEM?</p>	<p>We support common platforms, communication standards and shared systems, but question the appropriateness of making it a requirement to consider options that promote these outcomes. This is particularly if the pursuit of shared learnings, common standards and common systems unduly distracts from what maximises the net economic benefits for all energy customers.</p>

<p>Question 10 – Rail gauge outcomes</p>	
<p>As a corollary to the above question, it will be increasingly important for the industry to work together to provide customer outcomes that are consistent across the NEM (or with international standards if applicable). What approaches or information is reasonable to show that any DNSP-specific communication protocols, interfaces, connection standards, etc. will not lead to increased cost and complexity for consumers and industry providers?</p>	<p>We agree that, where possible, ‘off-the-shelf’ products, designs or systems should be preferred over bespoke or DNSP specific solutions.</p> <p>Through our NIAC we are consulting with our customer advocates on these issues. Our customer advocates have stressed the importance of working together so as to avoid these ‘rail gauge’ problems.</p> <p>Industry groups, like Energy Network Australia (ENA), also provide avenues for standardisation to be pursued across the industry. For example, the ENA is jointly running the Open Energy Networks project with AEMO, which seeks to identify how best to integrate DER into Australia’s electricity grid.</p> <p>Another avenue for collaboration is the Australian Renewable Energy Agency’s (ARENA) Distributed Energy Integration Program (DEIP). It is led by a steering group that aims to provide a forum for information exchange and collaboration on DER issues.</p> <p>The AER could also play a key role in making sure electricity distributors learn from each other experiences. This is by collecting data and publishing reports on DER related spending on hardware and equipment. The TEC pointed out to us in our consultation that a co-ordination role from the AER would provide customer advocates with transparency over DER integration expenditure.</p>

A scenic landscape at sunset. A paved road with a dashed white line runs through the center, flanked by large, dark trees. In the distance, a utility pole stands against a bright orange and yellow sky. The overall mood is peaceful and serene.

Thank you

